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**TRANSMITTAL  
FORM**

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission

20

Application Number

10/023,154

Filing Date

December 17, 2001

First Named Inventor

C.L. Molloy et al.

Art Unit

2195

Examiner Name

C. Troung

Attorney Docket Number

FIS920010174US1

**ENCLOSURES (Check all that apply)**

Fee Transmittal Form



Fee Attached



Amendment/Reply



After Final



Affidavits/declaration(s)



Extension of Time Request



Express Abandonment Request



Information Disclosure Statement



Certified Copy of Priority Document(s)

Reply to Missing Parts/  
Incomplete ApplicationReply to Missing Parts  
under 37 CFR 1.52 or 1.53

Drawing(s)



Licensing-related Papers



Petition

Petition to Convert to a  
Provisional Application

Power of Attorney, Revocation



Change of Correspondence Address



Terminal Disclaimer



Request for Refund



CD, Number of CD(s) \_\_\_\_\_

☐ Landscape Table on CD

After Allowance Communication to TC

Appeal Communication to Board  
of Appeals and InterferencesAppeal Communication to TC  
(Appeal Notice, Brief, Reply Brief)

Proprietary Information



Status Letter

Other Enclosure(s) (please identify  
below):

Remarks

Express Mail No. EV726594892US

**SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT**

Firm Name

DeLio &amp; Peterson, LLC

Signature

Printed name

Peter W. Peterson

Date

May 31, 2006

Reg. No.

31,867

**CERTIFICATE OF TRANSMISSION/MAILING**

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

Signature

Typed or printed name

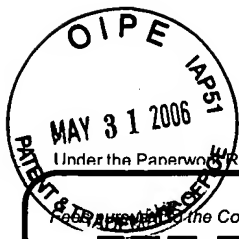
Barbara Browne

Date

May 31, 2006

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Effective on 12/08/2004.

Under the Consolidated Appropriations Act, 2005 (H.R. 4818).

**FEE TRANSMITTAL**  
**For FY 2005**☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$) 500.00

**Complete if Known**

Application Number	10/023,154
Filing Date	December 17, 2001
First Named Inventor	C.L. Molloy et al.
Examiner Name	C. Troung
Art Unit	2195
Attorney Docket No.	FIS920010174US1

**METHOD OF PAYMENT (check all that apply)**☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): \_\_\_\_\_☒ Deposit Account Deposit Account Number: 09-0458 Deposit Account Name: IBM East Fishkill

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☒ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, except for the filing fee☒ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17 ☒ Credit any overpayments

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**FEE CALCULATION****1. BASIC FILING, SEARCH, AND EXAMINATION FEES**

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

**2. EXCESS CLAIM FEES**

Fee Description	Fee (\$)	Small Entity Fee (\$)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	200	100
Multiple dependent claims	360	180

Total Claims	Extra Claims	Fee (\$)	Fee Paid (\$)
18	- 20 or HP = 0	x 25.00 =	0

HP = highest number of total claims paid for, if greater than 20.

Indep. Claims	Extra Claims	Fee (\$)	Fee Paid (\$)
3	- 3 or HP = 0	x 100.00 =	0

HP = highest number of independent claims paid for, if greater than 3.

**3. APPLICATION SIZE FEE**

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee (\$)	Fee Paid (\$)
- 100 = 0	/ 50 =	(round up to a whole number) x		

**4. OTHER FEE(S)**

Non-English Specification, \$130 fee (no small entity discount)

Other (e.g., late filing surcharge): AFile Appeal Brief

Fees Paid (\$)

500.00

**SUBMITTED BY**

Signature		Registration No. (Attorney/Agent) 31,867	Telephone 203-787-0595
Name (Print/Type)	Peter W. Peterson		Date May 31, 2006

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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DOCKET: FIS9 2001 0174 US1

PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**  
**BOARD OF PATENT APPEALS AND INTERFERENCES**

Express Mail No.: EV726594892US

In re

INVENTOR: C. L. Molloy et al.

) EXAMINER: C. Troung

)

SERIAL NO.: 10/023,154

) ART UNIT: 2195

)

FILING DATE: December 17, 2001

) DATE: May 31, 2006

)

FOR: SYSTEM FOR AUTOMATIC  
DATA INTERPRETATION

)

Mail Stop Appeal Brief - Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to Mail Stop Appeal Brief - Patents, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

Name: Barbara Browne Date: May 31, 2006

Signature

*Barbara Browne*

**BRIEF FOR APPELLANTS**

This is an appeal from the final rejection by the Examiner mailed February 8, 2006, rejecting claims 1, 3-7, 9-13 and 15-21. A notice of appeal and the appeal fee were timely mailed April 4, 2006. A check for \$500.00 for the appeal brief fee (large entity) is enclosed. Please charge any over or under payment to the assignee's Deposit Account No. 04-0458. Three copies of the brief are enclosed.

06/05/2006 AWONDAF1 00000056 090458 10023154

01 FC:1402 500.00 DA

### **REAL PARTY IN INTEREST**

The real party in interest is the assignee of all rights in this application, International Business Machines Corporation, a corporation of the State of New York, having a place of business at Armonk, New York, 10504.

### **RELATED APPEALS AND INTERFERENCES**

There are no appeals or interferences known to appellants, appellants' legal representatives or assignee, which will directly affect or be affected by, or have a bearing on the Board's decision on this appeal.

### **STATUS OF CLAIMS**

An amendment was filed in the subject application on May 10, 2005, responsive to the March 1, 2005 office action, amending claims 1, 3-5, 7, 9-11, 13 and 15-17, canceling claims 2, 8 and 14, and adding new claims 19-21. Appellants are appealing the rejection of these claims.

### **STATUS OF AMENDMENTS**

All the amendments made during prosecution of the application have been entered and are presently in the application. The rejected claims 1, 3-7, 9-13 and 15-21 as they presently stand are set forth in the Appendix.

### **SUMMARY OF CLAIMED SUBJECT MATTER**

Appellants' invention as recited in independent claim 1 is directed to a method for managing server network computing resources having a workload of a given type (page 5, line 17 to page 6, line 17). Independent claims 7 and 13 recite a program storage device and computer program product (page 9, line 28 to page 10, line 16; item 60; Fig. 4) that

employ method steps recited in claim 1. The invention in particular first develops a forecast based on historical performance and collects real-time performance data regarding the server network computing resources running under the workload (page 6, line 19 to page 7, line 4; items 110, 120, 130, 140, 150, 160, 170, 180, Fig. 1; page 8, lines 11-17). The invention then analyzes the real-time performance data and the forecast to identify a critical server network computing resource (page 7, lines 5-14; items 190, 200, 210, Fig. 2). Finally, the invention automatically adjusts a capacity of the server network computing resource to provide steady-state performance of the resource under the workload (page 7, lines 16-17; items 230, 250, Fig. 2; page 7, line 25 to page 8, line 2; page 9, lines 13-24; items 40, 42, Fig. 3).

Claims 3, 9 and 15, which depend from aforescribed claims 1, 7 and 13, respectively, describe setting threshold values for the performance data and identifying the server network computing resource in accordance with the threshold values (page 6, lines 24-25; item 150, Fig. 1; page 7, lines 10-14; item 210, Fig. 2). Dependent claims 4, 10 and 16 describe notifying a user of the server network computing resources when the critical resource is a server network computing hardware resource, and notifying the user when the capacity of the server network computing hardware resource is adjusted (page 7, lines 16-18; item 260, Fig. 2).

Dependent claims 5, 11 and 17-21 describe initially providing additional server network computing hardware resources available to, but unused by, the server network computing resources (page 10, lines 2-12, item 60, Fig. 4). Dependent claims 6, 12 and 18-21 describe the additional hardware resources as being CPUs, computer memory

and/or computer disk storage (page 7, line 25 to page 8, line 2; page 8, lines 16-18; items 40, 42, Fig. 3).

### **GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

The contested issues in this appeal are whether claims 1, 3-7, 9-13 and 15-21 are unpatentable on the following grounds.

I. Claims 1, 3, 4, 7, 9, 10, 13, 15 and 16 stand rejected under 35 USC § 103 as being obvious from Sarukkai U.S. Patent No. 6,571,288 in view of Smocha et al. U.S. Patent No. 6,694,288.

II. Claims 5, 6, 11, 12 and 17-21 stand rejected under 35 USC § 103 as being obvious from Sarukkai in view of Smocha, further in view of DeLuca et al. U.S. Patent No. 5,848,270.

### **ARGUMENT**

**I. Claims 1, 3, 4, 7, 9, 10, 13, 15 and 16 are not obvious under 35 USC § 103, from Sarukkai in view of Smocha et al.**

Claims 1, 3, 4, 7, 9, 10, 13, 15 and 16 stand rejected under 35 USC § 103 as being obvious from Sarukkai U.S. Patent No. 6,571,288 in view of Smocha et al. U.S. Patent No. 6,694,288.

A. Cited prior art

Sarukkai U.S. Patent No. 6,571,288 is directed to a method of separately measuring the capacity of individual servers in a multiple server network within a cluster, and using the measurement to rebalance the relative weight of the server in the network cluster. This is done by using a capacity prober to set the respective weights for all the servers in the cluster to the new relative weight in the load balancer connected to the network cluster.

See Sarukkai column 4, lines 39-42 and 62-65. In order to do so, Sarukkai must take each server in the cluster off line and stress test it to measure its capacity. See Sarukkai column 3, lines 3-6. The Sarukkai method merely uses off-line stress tests to subsequently rearrange the relative weight of the servers in the network. As Sarukkai states, "[t]he result is better load balancing which provides a reliable means of fairly sharing network resources" (column 4, lines 43-45) and "the operation of the cluster is better optimized" (column 3, line 9). Sarukkai must shut down each server, one at a time - something that appellants' method does not require - and run an off-line test. By contrast, appellants' invention collects "real-time performance data ... running under the workload."

Smocha et al. U.S. Patent No. 6,694,288 is directed to a method for analyzing performance of a network-accessible server, and does not disclose or suggest adjusting capacity of a server network, as in the present invention. Like Sarukkai, Smocha also only simulates a client behavior, and does not use "real-time performance data ... running under the workload" as appellants do.

B. Discussion of rejection

*Claims 1, 7 and 13*

Appellants' invention as recited in claims 1, 7 and 13 is directed to a method and associated computer program product and program of instructions for managing server network computing resources having a workload of a given type. The invention in particular a) collects real-time performance data regarding the server network computing resources running under the workload, b) analyzes the real-time performance data and the forecast to identify a critical server network computing resource, and c) automatically

adjusts a capacity of the server network computing resource to provide steady-state performance of the resource under the workload.

Unlike appellants' invention, Sarukkai does not add or subtract and capacity to the network – he merely rearranges the manner in which it is balanced among the servers. There is no disclosure or suggestion by Sarukkai of "automatically adjusting a capacity of the server network computing resource" as in appellants' invention defined in claims 1, 7 and 13. Such capacity may include, for example, a central processing unit (CPU) microprocessor, computer memory, storage, or other hardware resource necessary to maintain the system at steady state operation. See specification page 7, lines 25-29. (Particular capacity resources are defined in claims 6, 12 and 18-21.)

The Examiner acknowledges, "Sarukkai does not explicitly teach collecting performance of the server in accordance with the type of workload." Office action, p.2 (emphasis in original). The Examiner then cites the Smocha patent as disclosing this feature. However, the Smocha patent is directed to a method for analyzing performance of a network-accessible server, and does not disclose or suggest adjusting capacity of a server network, as in the present invention. Like Sarukkai, Smocha also only simulates a client behavior, and does not use "real-time performance data ... running under the workload" as appellants do. Thus, Smocha does not remedy the deficiencies of Sarukkai described above.

Accordingly, the hypothetical combination of Sarukkai and Smocha does not render obvious the claimed invention to one of ordinary skill in the server network computing art



since they do not address automatically adjusting server network capacity, and their combination (even if proper) does not arrive at appellants' claimed invention.

*Claims 3, 9 and 15*

Dependent claims 3, 9 and 15 add the subject matter of setting threshold values for the performance data and identifying the server network computing resource in accordance with the threshold values. Presumably the Examiner is citing Smocha, not Berg, at column 11, lines 15-30 as disclosing such. However, Smocha does not disclose identifying the server network computing resource, since he is directed only to performance of a single, stand-alone server. This citation does not disclose server network computing resources, or any identification of server network computing resources. Claims 3, 9 and 15 are therefore not obvious from the combination of Sarukkai and Smocha.

*Claims 4, 10 and 16*

Claims 4, 10 and 16 recite notifying a user of the server network computing resources when the critical resource is a [server network computing] hardware resource, and notifying the user when the capacity of the [server network computing] hardware resource is adjusted. For this subject matter, the Examiner cites Smocha at column 1, lines 60-65 and column 12, lines 16-23.

Smocha discloses analyzing various parameters in a network accessible server and sending statistically significant patterns to a user and suggesting likely causes for the parameter values. There is no disclosure or suggestion in Smocha that this refers to a server network computing hardware resource, or notification to the user when the capacity

of the hardware resource is adjusted. Accordingly, the present invention as recited in claims 4, 10 and 16 is not rendered obvious from the cited art.

In summary, appellants' invention provides an unobvious automated method of managing server network computing resources by adjusting the resource capacity under load, and does not rely on off-line stress-testing and rebalancing as in Sarukkai, or simulated client behavior as in Smocha.

**II. Claims 5, 6, 11, 12 and 17-21 are not obvious under 35 USC § 103 from Sarukkai in view of Smocha et al, further in view of DeLuca et al.**

Claims 5, 6, 11, 12 and 17-21 stand rejected under 35 USC § 103 as being obvious from Sarukkai in view of Smocha, further in view of DeLuca et al. U.S. Patent No. 5,848,270.

**A. Cited prior art**

The Sarukkai and Smocha patents are described above.

DeLuca et al. U.S. Patent No. 5,848,270 is directed to a method for modeling process capacity required by a server system, without requiring the construction of the server system. Column 2, lines 41-44. The portion of DeLuca cited by the Examiner merely compares specifications of a modeled server system to an existing server system. No actual additional unused but available hardware resources are provided to a server system by DeLuca.

**B. Discussion of rejection**

*Claims 5, 11 and 17-21*

Claims 5, 11 and 17-21 recite that there is initially providing additional [server network computing] hardware resources available to, but unused by, the server network

computing resources. The Examiner acknowledges, "Sarukkai and Smocha do not explicitly teach providing additional hardware resources available to, but unused by, the server network computing resources." Office action, p.4. The Examiner cites for this subject matter the disclosure of DeLuca at column 11, lines 15-19.

DeLuca is directed to a method for modeling process capacity required by a server system, without requiring the construction of the server system. Column 2, lines 41-44. The portion of DeLuca cited by the Examiner merely compares specifications of a modeled server system to an existing server system. No actual additional unused but available hardware resources are provided to a server system by DeLuca. Therefore, the combination with DeLuca does not render obvious the present invention defined by claims 5, 11 and 17-21.

*Claims 6, 12 and 18-21*

Claims 6, 12 and 18-21 specify that the additional hardware resources are CPUs, computer memory and/or computer disk storage. The Examiner cites the same portion of DeLuca as cited for claims 5, 11 and 17. Again, since DeLuca does not actually provide any unused but available hardware resources to an actual server network, appellants' invention as defined by claims 6, 12 and 18-21 is not obvious from a combination of Sarukkai, Smocha and DeLuca.

**CONCLUSION**

For the reasons given above, appellants submit that the claims of the instant application are not obvious from the cited prior art. Reversal of the rejections under 35 USC § 103 is respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Peter W. Peterson', written over a horizontal line.

Peter W. Peterson  
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**CLAIMS APPENDIX****Rejected Claims of Serial No. 10/023,154**

1. (previously presented) An automated method of managing server network computing resources having a workload of a given type, the method comprising:  
providing resource data collectors for collecting data regarding performance of the server network computing resources, in accordance with the type of workload;  
developing a forecast of utilization of the server network computing resources, based on historical performance data;  
collecting real-time performance data regarding the server network computing resources running under the workload;  
analyzing the real-time performance data and the forecast to identify a critical server network computing resource; and  
automatically adjusting a capacity of the server network computing resource to provide steady-state performance of said resource under said workload.
2. (cancelled)
3. (previously presented) The method of claim 1 further comprising setting threshold values for said performance data and identifying the server network computing resource in accordance with the threshold values.

4. (previously presented) The method of claim 1 further comprising:  
notifying a user of the server network computing resources when the critical resource  
is a hardware resource; and  
notifying the user when the capacity of said hardware resource is adjusted.
5. (previously presented) The method of claim 1 further comprising initially  
providing additional hardware resources available to, but unused by, the server network  
computing resources.
6. (original) The method of claim 5 wherein the additional hardware resources are  
selected from the group consisting of CPUs, computer memory and computer disk  
storage.
7. (previously presented) A program storage device readable by a machine, tangibly  
embodying a program of instructions executable by the machine to perform an automated  
method of managing server network computing resources having a workload of a given  
type, using resource data collectors for collecting data regarding performance of the  
server network computing resources in accordance with the type of workload, and a  
forecast of utilization of the server network computing resources based on historical  
performance data, said method steps comprising:  
collecting real-time performance data regarding the server network computing  
resources running under the workload;

analyzing the real-time performance data and the forecast to identify a critical server network computing resource; and  
automatically adjusting a capacity of the server network computing resource to provide steady-state performance of said resource under said workload.

8. (cancelled)

9. (previously presented) The program storage device of claim 7 wherein the method steps further comprise setting threshold values for said performance data and identifying the server network computing resource in accordance with the threshold values.

10. (previously presented) The program storage device of claim 7 wherein the method steps further comprise:

notifying a user of the server network computing resources when the critical resource is a hardware resource; and  
notifying the user when the capacity of said hardware resource is adjusted.

11. (previously presented) The program storage device of claim 7 wherein the server network computing resources further include additional hardware resources available to, but unused by, the computing resources.

12. (original) The program storage device of claim 11 wherein the additional hardware resources are selected from the group consisting of CPUs, computer memory and computer disk storage.

13. (previously presented) A computer program product for performing an automated method of managing server network computing resources having a workload of a given type, using resource data collectors for collecting data regarding performance of the server network computing resources in accordance with the type of workload, and a forecast of utilization of the server network computing resources based on historical performance data, said computer program product having:

- computer-readable program code for collecting real-time performance data regarding the server network computing resources running under the workload;
- computer-readable program code for analyzing the real-time performance data and the forecast to identify a critical server network computing resource; and
- computer-readable program code for automatically adjusting a capacity of the server network computing resource to provide steady-state performance of said resource under said workload.

14. (cancelled)

15. (previously presented) The computer program product of claim 13 wherein the computer program product further comprises computer-readable program code for setting



threshold values for said performance data and computer-readable program code for identifying the server network computing resource in accordance with the threshold values.

16. (previously presented) The computer program product of claim 13 wherein the computer program product further comprises:

computer-readable program code for notifying a user of the server network computing resources when the critical resource is a hardware resource; and  
computer-readable program code for notifying the user when the capacity of said hardware resource is adjusted.

17. (previously presented) The computer program product of claim 13 wherein the computer program product further includes additional hardware resources available to, but unused by, the server network computing resources.

18. (original) The computer program product of claim 17 wherein the additional hardware resources are selected from the group consisting of CPUs, computer memory and computer disk storage.

19. (previously presented) The method of claim 4 further comprising initially providing additional hardware resources available to, but unused by, the server network

computing resources, the additional hardware resources being selected from the group consisting of CPUs, computer memory and computer disk storage.

20. (previously presented) The program storage device of claim 10 wherein the server network computing resources further include additional hardware resources available to, but unused by, the computing resources, the additional hardware resources being selected from the group consisting of CPUs, computer memory and computer disk storage.

21. (previously presented) The computer program product of claim 16 wherein the computer program product further includes additional hardware resources available to, but unused by, the server network computing resources, the additional hardware resources being selected from the group consisting of CPUs, computer memory and computer disk storage.

**EVIDENCE APPENDIX**

None

**RELATED PROCEEDINGS APPENDIX**

None